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FARNBOROUGH SPECIAL

Airbus has a field day

A man in a dark suit and purple tie is smiling and holding a white model of an Airbus A320 aircraft. Behind him is a large screen displaying an Airbus A330 aircraft in flight and the Airbus logo. The background is a bright blue sky with clouds.

Company Profile
Delta TechOps

MRO News
from around the world

People on the Move
latest appointments

IBA Analysis 

OEMs out in full force

This year's instalment of Farnborough will notably be remembered for the strong presence of the aircraft manufacturers representing every sector from regional to long haul. They were all out to showcase new products and highlight their programme updates.

Clearly, Airbus was high on that list with the announcement of the A330neo and the selection of Rolls Royce as the sole engine supplier. However, not everyone welcomed the news and the current trend by Airbus and Boeing to offer a single power plant for their new wide body planes. Qatar Airways CEO Akbar

Al Baker told trade reporters that this trend could lead to manufacturers losing business to other OEMs and that airlines rather appreciated choice.

Airbus has responded by saying they (Airbus) has "taken the liberty to negotiate a good engine price with Rolls-Royce for all customers in advance."

Sukhoi, for the first time brought two SSJ 100 aircraft as part of the static display. Sukhoi are hoping to capture a 20-25% share of the 90 to 120 seat market in the next 20 years and the

company is also hoping to conclude a sale to a Western airline "very soon."

And of course the mood at Farnborough was temporarily dampened as news of the Malaysian Airlines MH17 777 trickled in. The whole thing has an eerily resemblance to the Iran Air 655 incident back in the 1980s. No doubt it's another blow to the Malaysian carrier.

Keith Mwanalushi
Editor



All smiles. "This is the best Farnborough Airshow in Airbus history," said Airbus President and CEO Fabrice Brégier

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WHEN RESULTS MATTER



Firth Rixson and Snecma (Safran) sign LEAP engine contract

Photo: Firth Rixson

Firth Rixson and Snecma sign LEAP engine contract

Firth Rixson and Safran's leading aero engine company, Snecma, have signed a critical supplier contract worth over an estimated \$200m initially. The long term agreement secures the supply of Firth Rixson's closed die forged and seamless ring rotating components for the CFM International LEAP-1A, LEAP-1B and LEAP-1C engine programs, from 2014 to 2023. Such LEAP engine programs will power leading next generation aircraft from the Airbus A320neo family and the Boeing 737 MAX family, to the Comac C919.

Microturbo assumes responsibility for bizjet development APU programs

Microturbo and Pratt & Whitney AeroPower, reported that Microturbo will assume full responsibility for the design, production, product support and service of the APS2[800] and APS500[D] APU programs for Bombardier and Dassault Aviation. The companies will also extend their existing relationship to allow collaboration on future business jet and regional APU programs. In such cases, Microturbo would lead on opportunities in the business jet APU segment and Pratt & Whitney AeroPower would lead on opportunities in the regional APU segment. The collaboration was initiated in 2011 to develop new-generation electrical and bleed auxiliary power units for the business jet. The APS2[800] APU is designed for Bombardier's Global 7000 and 8000 aircraft. The APS 500[D] is the APU for Dassault's Aviation Falcon 5X.

UTC Aerospace Systems extends long term C.A.R.E. agreement with All Nippon Airways

UTC Aerospace Systems has extended its Comprehensive Accessory Repair and Exchange (C.A.R.E.) program with All Nippon Airways to provide repair services and asset management for the airline's Boeing 787 fleet expansion until 2021. The extended C.A.R.E. program now includes total repair and inventory support services for a total of 66 Boeing 787 aircraft, including the B787-8 and B787-9. Products supported under the agreement include air management systems, electric power generator and start system, emergency power system, primary and remote power distribution systems and auxiliary power control systems accessories. The original C.A.R.E. program started in 2011 and covered All Nippon Airways' first 50 B787 aircraft.

SAS and Lufthansa Technik expand cooperation by more than 150 C-checks

Scandinavian Airlines System (SAS) and Lufthansa Technik AG, headquartered in Hamburg, are expanding their long-standing close partnership even further. Under a new agreement that takes effect immediately and runs through the end of 2018, Lufthansa Technik will take on more than 150 C-checks for the airline's fleet of Boeing 737NG and Airbus A320 family aircraft. As a consequence, more than 100 aircraft will be newly added to Lufthansa Technik's international overhaul network, in which C-checks for SAS' fleet of Airbus A330/340 aircraft are already carried out by Lufthansa Technik Malta. Checks of the Boeing 737NG and Airbus A320 aircraft

will be performed primarily by Shannon Aerospace, Lufthansa Technik Group's Irish overhaul operation, and by Lufthansa Technik Sofia.

GE Aviation, Hamble prepares for production start-up of the Airbus A350-1000's wing fixed trailing edge package

GE Aviation, Hamble – the aerostructures business of GE Aviation – is readying its production start-up for the Airbus A350-1000 jetliner's wing fixed trailing edge package, comprising more than 3,000 deliverable components that incorporate structural composite panels, complex machined parts and assemblies. The A350 XWB wing fixed trailing edge package is the largest design and manufacture contract awarded in GE Aviation, Hamble's 78-year history. GE Aviation, Hamble has full responsibility for the design and build of the fixed trailing edge package on all variants, beginning with the A350-900 version – for which deliveries have been underway since 2011.

GKN Aerospace wins contract for Bombardier Global 7000 and Global 8000 rudder and elevator

GKN Aerospace has been selected by Bombardier Aerospace, Belfast to design, develop and supply the composite integrated rudder and elevator for the new Global 7000 and Global 8000 ultra long-range business jets. The multi-million pound contract adds to already significant GKN Aerospace work packages on these aircraft. These composite structures will be developed and manufactured at the company's Cowes facility on the Isle of Wight, UK. First deliveries to Bombardier in Belfast will take place in 2014 and will continue through to 2026.

SAS becomes launching customer for HelioJet

Scandinavian Airlines System (SAS) and Lufthansa Technik have signed a contract for the delivery of HelioJet, making SAS the launching customer for the new LED cabin lighting system. HelioJet is part of a comprehensive cabin modification program for seven Airbus A330/ A340 aircraft which SAS is executing over the next months. HelioJet has been designed and developed in a cooperation between the German glass and lighting specialist SCHOTT AG and Lufthansa Technik. It has the advantages of LED technology without the color changes that normally afflict ageing LEDs.

Rolls-Royce signs TotalCare deal with United Airlines

Rolls-Royce has signed a contract with United Airlines to extend TotalCare service support for the lifetime of RB211-535 engines operated by United on Boeing 757 aircraft. The innovative agreement incorporates ideas from Rolls-Royce TotalCare Flex – a concept currently in development that focuses on the most effective management of mature engines.

Auxiliary fuel tanks for Bombardier Q400

Marshall Aerospace and Defence Group and Bombardier Aerospace are developing an External Auxiliary Fuel System solution for the Bombardier Q400 turboprop aircraft. The solution, which will be available as an official Bombardier option, will provide up to an additional 10,000lb of fuel in two external pannier tanks allowing the aircraft to fulfil a whole range of missions requiring additional range and endurance, allowing this turboprop platform to be able to sustain opera-

tions of up to 12 hours. Marshall is responsible for the design, development, manufacture and test of the auxiliary fuel system. Marshall has pioneered innovative fuel systems and tanks for the Boeing P8 and the Airbus A318E as well as special mission modifications and integrations.

Jet Airways Extends OnPoint Solution agreement with GE for GE90 -115B engines

Jet Airways, India's premier international airline, extended its OnPoint solution agreement with GE Aviation for an additional five years on the fleet of GE90 engines that power the airline's Boeing 777-300ER. The extension, valued at more than \$200m, ensures GE will provide the maintenance, repair and overhaul of 22 GE90 engines through 2022. Also, Jet Airways has signed an agreement with GE for a thrust bump on its entire GE90 fleet of 22 engines. This provides Jet Airways with the flexibility to operate high payloads even when flying out on short runways under severely hot operating conditions experi-

enced in the summer months in many parts of Asia and the Middle East.

\$1bn aero engine and landing gear agreement signed between Firth Rixson and United Technologies

Firth Rixson has signed a 10-year agreement valued at more than \$1bn with United Technologies Corporation to supply engine and system components for UTC Propulsion & Aerospace Systems' businesses Pratt & Whitney and UTC Aerospace Systems. As UTC ramps up production of its commercial and military aircraft systems and engines, Firth Rixson will provide valuable parts for UTC's legacy and next generation programs, including Pratt & Whitney's PurePower engine family, and UTC Aerospace Systems Boeing 787 and Airbus A320 programs. This reflects Firth Rixson's advancements in next generation aircraft manufacturing. The new business will considerably benefit eleven of Firth Rixson's twelve operating facilities worldwide, spanning North America, the UK, and China.

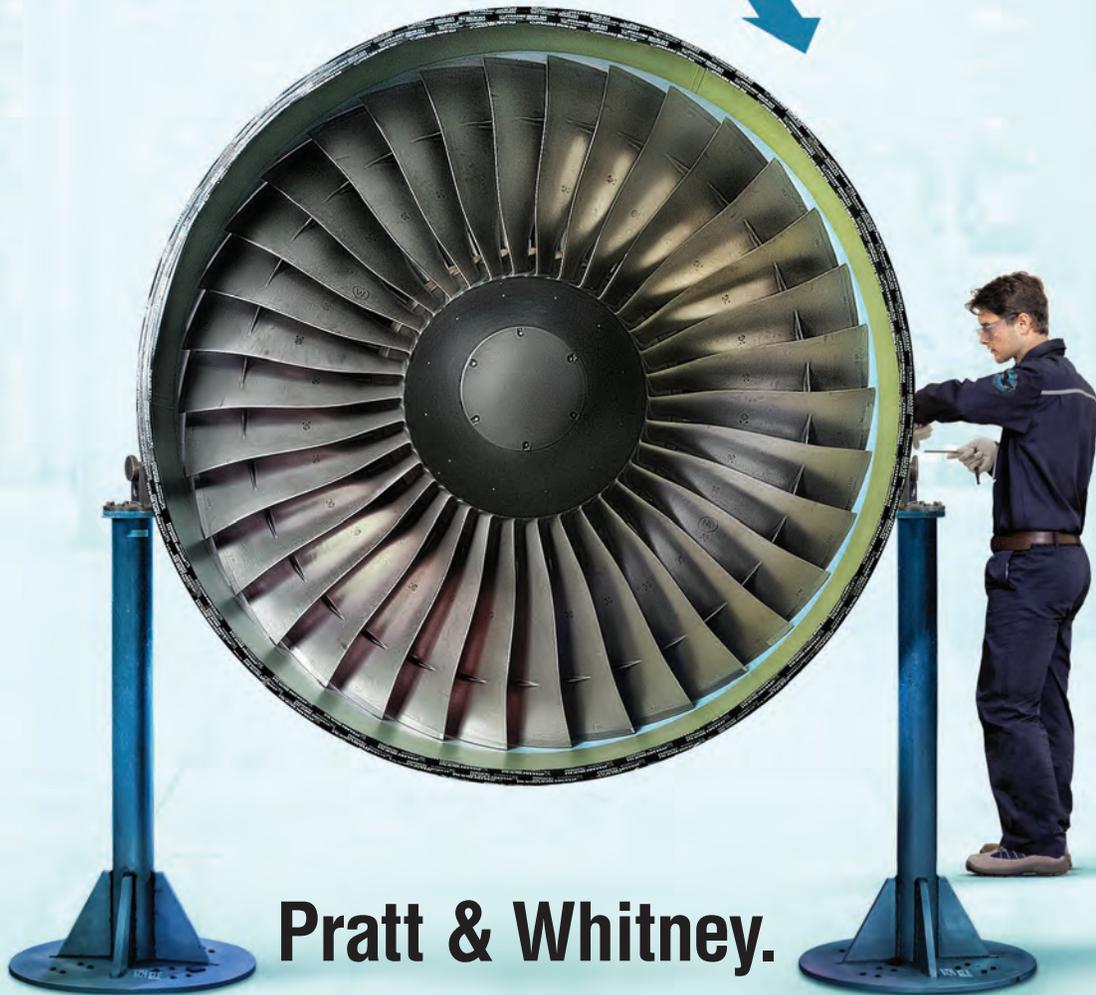
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Aerostar of Romania installs Split Scimitar Winglets on TUIFly Nordic Boeing 737-800s

Aerostar S.A. has become one of the first independent European MRO organisations to install Split Scimitar Winglets on Boeing 737-800s at its Bacau facility. The installations were carried out on two aircraft belonging to TUIFly Nordic of Sweden – another new customer for Aerostar’s growing commercial aircraft maintenance, repair and overhaul (MRO) business. The first aircraft, a Boeing 737-8K5 (WL), bearing registration SE-RFU, arrived at Bacau in early May for a Base Maintenance Check. At the end of the check, the aircraft – which had already had its wings reinforced ready for the installation – was fitted with the new Split Scimitar Winglets. It was followed by the second aircraft, a Boeing 737-86N (WL), bearing registration SE-RFV, that was subject to a Base Maintenance Check along with the embodiment of the complete Split Scimitar Winglet installation; provisioning (wing structure reinforcement) and installation of the upgraded winglets. The complete installation was carried out in six days and had no impact on the maintenance check downtime. Photo: Aerostar, Text: Split Scimitar Winglets on a TUIFly Nordic Boeing 737-800



Split Scimitar Winglets on a TUIFly Nordic Boeing 737-800

Photo: Aerostar

AFI KLM E&M supports Virgin Atlantic deployment of Boeing 787 fleet

Virgin Atlantic has decided to entrust component support services to AFI KLM E&M for its new fleet of Dreamliners which begin entry into service later this year. The contract strengthens an existing relationship between the two partners and covers component and APU maintenance, along with pool access and the supply of a Main Base Kit holding in London for the Boeing 787-9s the UK airline has on order.

Air Serbia signs five year power-by-the-hour contract with AJW Aviation

Air Serbia, the national airline of Serbia, has signed a five year power-by-the-hour contract with AJW Aviation, the integrated complete aircraft support specialist. The contract will cover the supply of spare parts for Air Serbia’s seven A319-100 and two A320-200 aircraft.

mitment to GE-quality engine maintenance. Earlier this year, GE and EGAT announced formation of GE Evergreen Engine Services, a new joint venture company specializing in overhaul of the GENx. GE Evergreen Engine Services will be equipped to perform limited work on the GENx in 2015 with full overhaul capability to follow in 2019.

Republic Airways expands MRO agreement with GE

Republic Airways expanded its OnPoint solution agreement for engine maintenance, repair and overhaul to its current fleet and added 101 CF34-8Es that power an additional 47 EMBRAER 175 aircraft. The expanded agreement is valued at \$500m over the life of the contract.

Evergreen Aviation Technologies named CF6 TRUEngine Authorized MRO

In its continued relationship with GE, Evergreen Aviation Technologies (EGAT) has been named an independent TRUEngine authorized maintenance, repair and overhaul (MRO) provider for GE CF6 engines, demonstrating a further com-

Dowty Propellers is awarded a multi-year contract to support SpiceJet’s fleet of Bombardier Q400 regional airliners

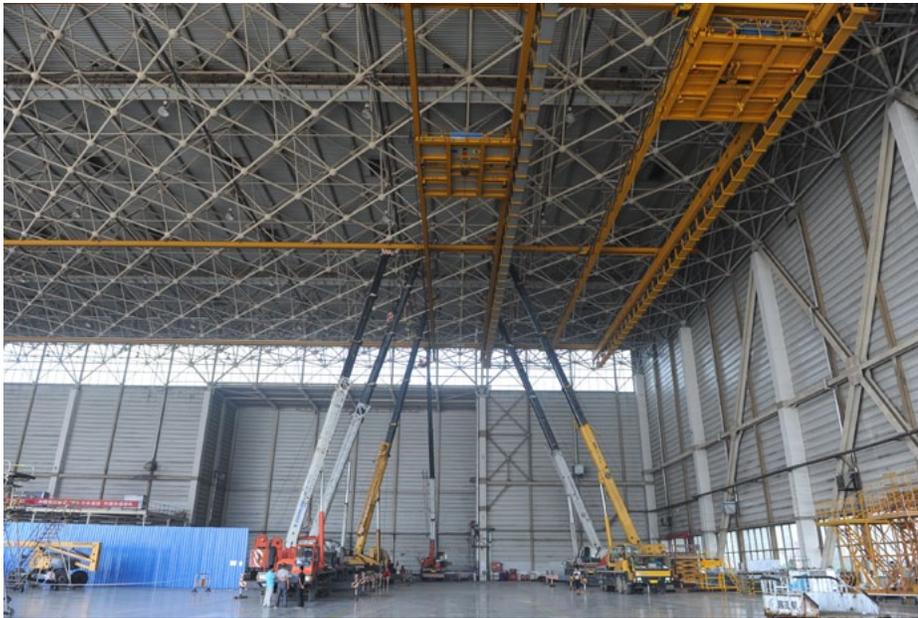
India’s SpiceJet has contracted with Dowty Propellers to provide a complete support package for propeller systems on the airline’s fleet of 15 Bombardier Q400 NextGen regional aircraft, including repairs, overhaul, technical assistance, the availability of rotatable spares and on-site support. Backed by the full capabilities of Dowty Propellers as the type certificate holder for the Bombardier Q400 NextGen turboprop’s propeller system, this eight-year contract represents

the culmination of a joint process to develop a unique, tailored system that comprehensively considers the airline’s operations.

Dowty Propellers signs a letter of intent with XAC to provide propeller systems for the MA700 regional aircraft

China’s AVIC Aircraft Xi’An Aircraft Company (XAC) and Dowty Propellers have signed a letter of intent to provide propeller systems for the new MA700 aircraft. The propeller to be

provided by Dowty Propellers builds on more than 75 years of experience in propeller design, manufacture and support, and incorporates new blade aerodynamic designs, along with a highly-reliable and proven propeller system. The propeller will allow the aircraft to deliver optimal levels of endurance and fuel efficiency, while achieving a low-noise environment for the cabin, and competitive life-cycle costs. As an all-new generation of turboprop aircraft, the MA700’s range of 800 km. positions it in the medium capacity sector of regional air transport, with the capability of operating in high altitude, high temperature locations.



Ameco started upgrading 4-bay hangar

Photo: Ameco

Ameco to upgrade 4-bay hangar for aircraft overhaul

On July 1st, Ameco Beijing started installing a tail dock at its present 4-bay hangar to go with the growth of aircraft overhaul workload. It is the fourth dock installed in this hangar, with an investment of more than US\$1m. The installation is due to finish at the end of September. The new dock design takes the need of new aircraft types into consideration, such as Boeing 787 and 747-8. Ameco's 4-bay hangar was put into use in 1996, and can host four Boeing 747s for overhaul at the same time. Its docks and related equipment have been upgraded along with the workload growth and maintenance capability. The airframe workload shows a strong growing trend this year at Ameco, with customers from North America, Europe, Middle East, and Asia for overhaul and various modifications. In June, Ameco signed contracts with ACT Airlines, Air Atlanta Icelandic for Boeing 747 C-check and KLM Royal Dutch Airlines for Boeing 747 D-check. In addition to the 4-bay hangar, Ameco also has a Boeing 747 painting and overhaul hangar, an A380 hangar for maintenance and light check and a hangar dedicated for VIP and business jet completion.

Avio-Diepen signs distribution agreement with Cinch

Cinch and Avio-Diepen have recently signed a distribution agreement authorizing Avio-Diepen to distribute Cinch aerospace products worldwide. Cinch has been supplying high quality,

high performance connectors and cables to the aerospace market for over 40 years. Recent acquisitions have strengthened Cinch's capabilities in the field of (expanded beam) fiber optics. Cinch's product engineering and development activities employ cutting edge technologies for design and modeling.

Boeing introduces new method for building 777 fuselages

Boeing is in the final phases of testing and production readiness of a new method for building 777 fuselages as part of its ongoing technology investment strategy. Known as the Fuselage Automated Upright Build, or FAUB, this Advanced Manufacturing technology improves workplace safety and increases product quality. This technology has been in development by Boeing since 2012. With this new technology, fuselage sections will be built using automated, guided robots that will fasten the panels of the fuselage together, drilling and filling the more than approximately 60,000 fasteners that are today installed by hand. FAUB offers numerous benefits including an improvement in employee safety. The nature of the drilling and filling work makes it ideal for an automated solution. More than half of all injuries on the 777 program have occurred during the phase of production that is being automated. In addition, the automated system is expected to reduce build times and improve first-time quality of the build process. The 777 program has already begun testing FAUB at a facility in Anacortes, Wash. Production readiness preparations are underway and the system

will be installed in Everett in a new portion of the main factory that is under construction now. The technology is expected to be implemented in the next few years. The robotic system, designed for Boeing by KUKA Systems, is the latest in a series of strategic Advanced Manufacturing moves on the 777 program, which have already included new systems for painting wings and other drilling operations.

Aircelle to supply nacelles for the newly-launched Airbus A330neo twin-engine jetliner

A major new program has been awarded to Aircelle (Safran), with the company's selection to supply nacelles for Airbus' latest A330 version – the A330neo (new engine option) jetliner. These nacelles are to equip the A330neo's two large Rolls-Royce Trent 7000 turbofan powerplants, and will use Aircelle's experience gained in developing and supplying nacelles for the Airbus A380 jetliner's high-thrust engines – which are in a similar size category. As with the A380, Aircelle will apply its expertise in the use of composite materials, acoustic treatment and system architecture for the A330neo nacelles. Production activity will involve all of Aircelle's primary industrial sites: Le Havre, France; Burnley, England; and Casablanca, Morocco; with painting, assembly and delivery performed from its Colomiers, France facility located near Airbus' A330 final assembly line at Toulouse Blagnac Airport.

Parker Aerospace to support Rolls-Royce on Trent 1000 Package C and Trent 1000 -TEN engines

Parker Aerospace has been chosen by Rolls-Royce to provide high-temperature fuel hoses and lifetime support on its Trent 1000 -TEN and Trent 1000 package C engines. The Rolls-Royce Trent 1000 C and Trent 1000 -TEN engines are being developed for the Boeing 787 Dreamliner aircraft. Product design, manufacture, and support will be completed by Parker's Stratoflex Products Division in Fort Worth, Texas. The bill of material covers high-temperature hoses that channel fuel to the engine. As part of the partnership, Parker will provide all-inclusive customer service and support on its components for the life of the engines. This approach is a continuing tradition for Parker on Rolls-Royce TotalCare programs and helps provide optimized, predictable cost over the long term. The first Parker-supplied Trent 1000 -TEN components are scheduled for delivery to Rolls-Royce in late 2014.



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Oman Air signs heavy maintenance agreement with JorAMCo

Oman Air has signed a new deal with JorAMCo to provide the Omani national carrier with base maintenance services for two Embraer 175 and three Airbus A330 aircraft in its fleet. The maintenance checks are planned to take place between May and November this year. The move continues a collaborative effort between the two companies, with JorAMCo successfully accomplishing similar checks to two additional Oman Air Embraers last year.



Oman Air signs base maintenance services contract with JorAMCo

Photo: JorAMCo

Alcoa signs 10-year, \$1.1bn agreement with Pratt & Whitney

Alcoa announced a 10-year, \$1.1bn agreement with Pratt & Whitney for state-of-the-art jet engine components. Under the deal signed at the Farnborough Air Show, Alcoa will supply key parts for Pratt & Whitney's engines, including the forging for the first ever aluminum fan blade for jet engines. The forging was developed for Pratt & Whitney's PurePower engines using an advanced aluminum alloy and a proprietary manufacturing process. Also for the PurePower engines, Alcoa is developing a fan blade forging using its most advanced aluminum-lithium alloy. Under the \$1.1bn deal, Alcoa will supply components for Pratt & Whitney's PurePower PW1000G, V2500, GP7000 and several other regional jet and military engines.

UTC Aerospace Systems to provide new wheels and carbon brakes for A320neo aircraft family

UTC Aerospace Systems has been selected by Airbus to supply new wheels and carbon brakes for A320neo family aircraft, through its Landing Systems facility in Troy, Ohio. The equipment is scheduled to enter into service in 2015 on the current A320 family of aircraft. The new wheels and brakes are designed as a product improvement and in parallel to today's existing design and will be introduced with compatibility across the current A318/A319/A320 and A319/A320neo platforms. The new equipment includes a larger carbon sink mass and the next generation oxidation protection system. The brake and wheel structures of the new equipment are optimized for weight and performance. The brakes use proprietary DURACARB(R) carbon heat sink material which allows UTC Aerospace to provide significant cost savings for operators through improved brake life.

Emirates signs \$13bn GE9X services agreement

Emirates airline signed a 12-year OnPointSM solution agreement with GE for the maintenance, repair and overhaul of its new GE9X engines that will power its 150 Boeing 777X aircraft. The OnPoint solution agreement is valued at more than \$13bn over the life of the contract. The OnPoint solution agreement is part of the finalization of Emirates airline's record commitment for 150 Boeing 777X twin-engine aircraft, powered by GE's new GE9X engine. The agreement for the 300 GE9X engines announced at the 2013 Dubai Air Show is worth more than \$15bn list price. With this agreement, GE Aviation secured its largest ever commercial jet engine award from an airline.

Qantas extends OnPoint solution agreement with GE for CF6-80E1 engine fleet

Qantas Airways has extended its OnPoint solution agreement with GE Aviation for an additional seven years on the fleet of CF6-80E1 engines that power the airline's Airbus A330-200 and A330-300 aircraft. The extension, valued at \$340m, ensures GE will provide the maintenance, repair and overhaul of 65 CF6-80E1 engines through 2025.

Middle River Aircraft Systems and Lufthansa Technik sign Thrust Reverser MRO partnership agreement

Middle River Aircraft Systems, a wholly owned subsidiary of GE Aviation, has signed a maintenance, repair and overhaul (MRO) agreement

with Lufthansa Technik under which LHT will be MRAS's authorized service provider for the thrust reverser on the GENx-2B engines that power the Boeing 747-8 aircraft. This long-term partnership will cover the 24/7 product support, asset leasing/exchange and maintenance service offerings to worldwide 747-8 operators. Lufthansa is currently the largest operator of the 747-8 aircraft with 19 total aircraft ordered. Boeing offers the 747-8 in both freighter and passenger aircraft configurations all powered by the GENx-2B engine. Under the agreement, LHT will provide various GENx-2B nacelle MRO services, including but not limited to warranty repairs and modifications on behalf of MRAS. Initially LHT will set up repair capability at its Hamburg, Germany and Shenzhen, China facilities. With more than three decades of experience within the area of advanced composites and bonded material repair technology, Lufthansa Technik has the proven experience to support customers through the entire life cycle of the nacelle – from the entry into service up to major and complex repairs. LHT will provide and maintain an adequate pool of spares to offer customers exchanges and or leases while their thrust reverser is being repaired. These serviceable spare thrust reversers will be available to worldwide customers on a 24/7 support basis.

AAR earns Nadcap accreditation for composites manufacturing

AAR announced that its composites manufacturing facility in Clearwater, Florida, has earned Nadcap accreditation to fabricate and build composite parts and assemblies for commercial and military markets. The designation represents a milestone for AAR and distinguishes the company as an expert in the field of composites manufacturing capable of meeting the highest industry

standards. Nadcap accreditation is a prerequisite for inclusion on the qualified product list for major aircraft OEMs including Boeing's A10 and 777, Bombardier's C-series, Sikorsky's S-92, Gulfstream, UTC-UTAS A320 and Triumph programs. The qualification follows an audit performed by the Performance Review Institute over the past five months. Satisfying these customer requirements demonstrates AAR's commitment to quality and opens the door to new business opportunities and expansion of key accounts.

GE names international aerospace companies as GE9X engine program participants

GE Aviation announced IHI Corporation (IHI: previously named Ishikawajima Harima Heavy Industries), Snecma and Techspace Aero (Safran), and MTU Aero Engines AG as participants in the GE9X engine program. The program participants will play a very significant role combining for approximately 25% share in the GE9X program, which is in development for the Boeing 777X aircraft.

IHI: With headquarters in Japan, IHI will be responsible for the design and manufacturing of various components in the low-pressure turbine and the fan mid-shaft.

Snecma (Safran): Based in France, Snecma will be responsible for the design and manufacturing of the 3D-woven composite forward fan case, the turbine rear frame and participate with GE on the composite fan blades through its 50/50 joint venture company at CFAN.

Techspace Aero (Safran): Headquartered in Belgium, Techspace Aero will be responsible for the design and manufacturing of the low pressure compressor as well as the manufacturing of the fan disk.

MTU Aero Engines AG: Located in Germany, MTU Aero Engines AG will be responsible for the design and manufacturing of the turbine center frame.

MTU Aero Engines takes stake in GE9X engine program

MTU Aero Engines will be taking a 4% workshare in General Electric's GE9X program. Germany's leading engine manufacturer will be manufacturing and assuming design responsibility for the engine's turbine center frame. Over the life of the program the workshare will be worth around €4.0bn in revenue for MTU. The new engine will be designed to exclusively power Boeing's 777X long-haul airliner, which is slated to enter service around 2020. 300 aircraft are already on firm order or option. The contractual details still need to be finalized between the parties. MTU will participate in the engine's sales and profits in proportion to its program share.

Avtrade establishes large Airbus A320 pool in Moscow

Avtrade announced the joint venture with S7 Engineering in Moscow. Avtrade has positioned

an A320 Pool inventory located at Sheremetyevo Airport to provide local component support to S7 and other Russian operators within the region; offering AOG Main Rotable Base Kit stock with no shipping costs to the end user. The Avtrade Moscow office will manage the inventory with S7 Engineering and provide Sales, Loans and Exchange but it will primarily be used for S7 and Avtrade PBH customers in Russia.

REVIMA APU now offering full APS5000 (B787) repair and test services

REVIMA APU is now fully approved by the EASA and FAA for repair and test of the APS5000 Auxiliary Power Unit (APU) installed on the Boeing 787 aircraft. The company is thus the first approved independent MRO provider worldwide for complete APS5000 test and repair services. REVIMA APU can support all B787 operators as a Pratt & Whitney AeroPower approved facility. Initial EASA approval for APS5000 APU repair was awarded to REVIMA APU in December 2013. This approval did not include the test of the APU. Since then, the company has worked diligently to complete its new state of the art APS5000 test cell, which was certified by the OEM in February of this year. This was followed by EASA and FAA approvals of the test cell received more recently. As a result, REVIMA APU can now perform the full APS5000 APU repair and test process at its facility, with EASA single release or EASA/FAA dual release. As of today, no other APU shop in the world outside of the OEM is able to test and release APS5000 APUs.

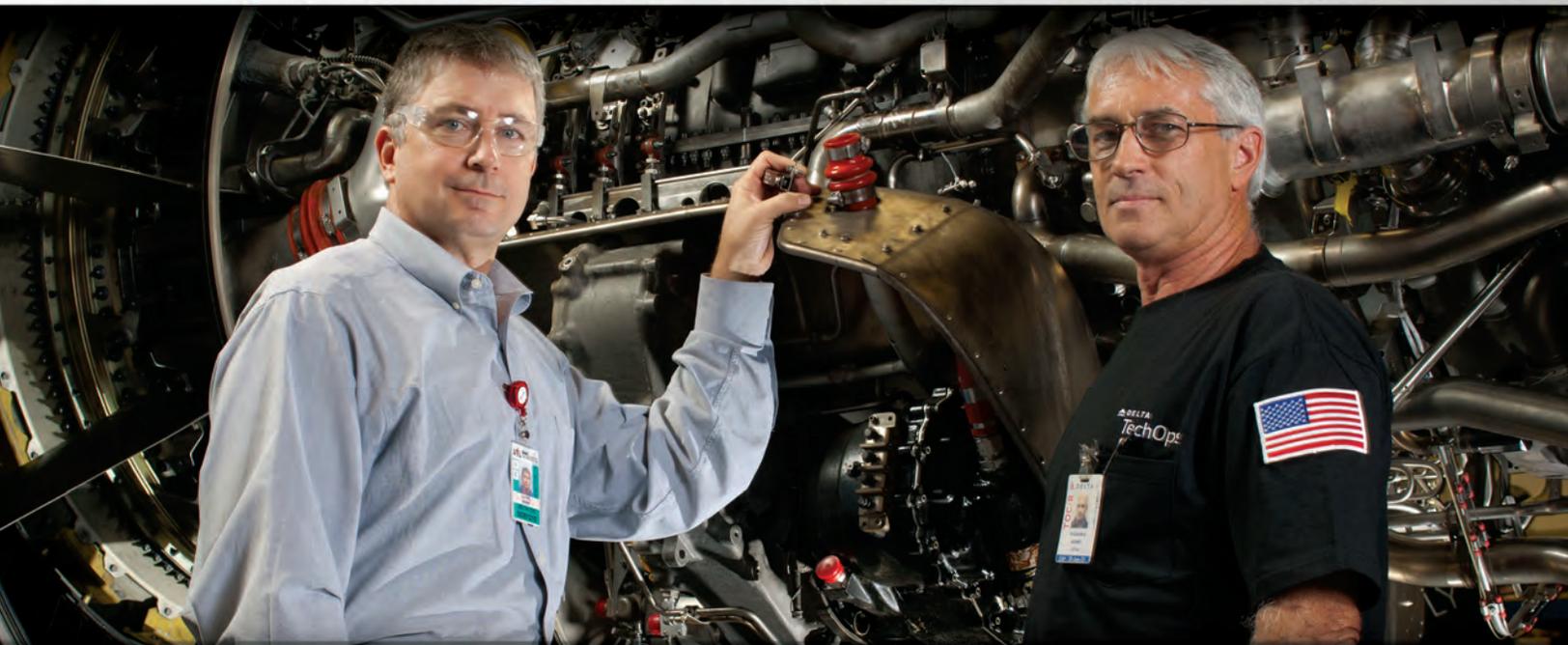
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Flying Colours Peterborough facility

Photo: Flying Colours Corp.

Flying Colours Corp. achieves Qatar maintenance approval

Flying Colours Corp., the Canada-based completions, refurbishment and maintenance specialists, has received approval from the Qatar Civil Aviation Authority (QCAA) to carry out maintenance work on business aircraft registered in the State of Qatar. The approval, which was awarded on June 17th, means that a full range of regular and line maintenance work can be undertaken at Flying Colours Corp's Peterborough, Canada-based facility on business jets originating from this Middle East region. QCAA status enables Flying Colours Corp. to undertake continuing airworthiness and maintenance work on aircraft, including all those under its Transport Canada Civil Aviation (TCCA) approval including the full Bombardier Challenger range, Bombardier Global Express, and the Dassault Falcon family.

Boeing expands maintenance support to customers in Southeast Asia

Boeing (BA) is enhancing its support to cus-

tomers in Southeast Asia through a joint venture in Singapore with SIA Engineering. Boeing and SIAEC signed an agreement to form Boeing Asia Pacific Aviation Services, which will provide industry-leading engineering, spare parts, and repair and maintenance services for Boeing airplanes. Boeing has signed contracts for maintenance and engineering services to cover Scoot's fleet of 20 787 Dreamliners currently on order and Singapore Airlines' fleet of 27 777-300ERs. Services for Scoot and Singapore Airlines will be provided through the new venture, which combines Boeing engineering management with repair and maintenance services from SIAEC.

Moog signs contract with Scoot for long term support of Moog flight control systems on fleet of 787 aircraft

Moog and Scoot, a subsidiary of Singapore Airlines, signed a 12 year exclusive contract for comprehensive support of the Moog Flight Control Systems on Scoot's fleet of Boeing 787 aircraft. The program will include maintenance and inventory support via Moog's strategically

selected worldwide stocking locations, giving Scoot 24/7 access to spares no matter where their aircraft are located. Moog, the provider of both primary and high lift flight control systems on the 787, recently launched an entirely new suite of aftermarket support solutions. The Moog Total Support program is aimed at providing airlines with a comprehensive range of services for Moog products, including inventory and maintenance support.

Piedmont Aviation Component Services signs four year APU maintenance agreement with ExpressJet Airlines

Piedmont Aviation Component Services, a wholly-owned subsidiary of TAT Technologies, has signed a four year APU maintenance agreement with ExpressJet Airlines covering its CRJ-200 fleet of 88 aircraft 36-150RJ APU. The agreement's total value may reach \$12m. For many years, Piedmont has been an industry leader in providing MRO services to the series 36-150 APU's as an Authorized Honeywell Service Center.

More African carriers collaborate with JorAMCo

Services Air Cargo has signed a deal with JorAMCo to provide the Congo based carrier with base maintenance services for one A310 aircraft. The maintenance check is planned to take place during July and August this year. This agreement demonstrates the strong capabilities that JorAMCo has on the A310 aircraft type, offering competitive priced and high quality maintenance solutions. Services Air is one of Dem. Rep. of Congo's leading private sector cargo airline in its formative stages based in Kinshasa (DRC). It is well organized to take advantage of a specific gap in the short-haul domestic freight transportation market.

The Fuel Cell announces expanded licensing agreement with UTC Aerospace Systems

The Fuel Cell, a leading provider of maintenance, repair and overhaul of jet aircraft fuel components, has expanded its licensing agreement with UTC Aerospace Systems to include the repair and overhaul of main fuel pumps for the GE CF6-80 engines. The Fuel Cell currently provides fuel component maintenance, repair and overhaul services to many of the world's major airlines and offers expansive capabilities on Pratt & Whitney, Rolls-Royce and GE engine fuel components, for Boeing, McDonnell Douglas, Airbus and Lockheed aircraft.

Aleris Zhenjiang achieves Nadcap accreditation for aerospace plate production

Aleris has attained Nadcap accreditation for its new rolling mill in Zhenjiang, China, an industry standard for the production of aircraft aluminum plate and a prerequisite for inclusion on the Qualified Product List (QPL) for major aircraft manufacturers. The certification follows audits performed by the Performance Review Institute in May 2014, with respect to Nadcap requirements for heat treating and non-destructive testing. Aleris' \$350m hot rolling mill unveiled in early 2013 was designed to meet fast-growing national and global demand for technically advanced aluminum plate products for global aerospace and commercial plate customers. With the achievement of Nadcap accreditation, the

company is preparing to move into the final stages of qualification with major aircraft manufacturers, with shipments of aircraft plate expected to begin in the third quarter. Once the qualification process is complete, Aleris Zhenjiang is expected to be one of the first facilities in Asia Pacific to produce aluminum plate for the major global aircraft manufacturers. Since opening last year, Aleris Zhenjiang has been shipping orders to commercial plate customers globally. These products serve a number of technically demanding end uses including engineering, transportation, ship-building, and air separation units. As a pre-requisite for these end uses the Zhenjiang plant has also received approval from many certification societies such as TUV, the American Bureau of Shipping, Det Norske Veritas, Class NK, and Bureau Veritas to supply products into ship-building, silo, pressure vessel and other industries.

VAS Aero Services signs parts management and distribution agreement with Southwest Airlines

VAS Aero Services, a global leader in aviation logistics and aftermarket services, announced it has entered into a five-year surplus parts management and distribution agreement with Southwest Airlines to manage the airline's surplus parts inventory from its fleet of Boeing 737 aircraft. This agreement will give VAS's global 737 Classic and Next Generation customer base access to an expanded pool of surplus inventory, helping VAS further enhance its service and support to customers worldwide. The inventory distribution will be managed from VAS's Seattle, WA facility, which also manages surplus inventory for The Boeing Company.

AAR lands supply chain deal with Kenya Airways

AAR, a global aerospace, government and defense contractor, has become the first aviation company to land a multi-year deal under the Obama administration's "Doing Business in Africa" initiative. AAR signed a five-year multi-million dollar agreement with Kenya Airways to provide power-by-the-hour component support for its fleet of 737NG aircraft. AAR will place inventory on site in Nairobi while offering additional rotatable pool support from its newly established supply chain hub in Brussels. This deal builds on AAR's recent

progress in establishing a foothold in Africa. Last year, AAR fulfilled a contract to service landing gear on Kenya Airways' Boeing 777s. AAR also supplies cargo systems for South African Airways and participated in the MRO Africa Conference and Exhibition in Ethiopia, focused on the build-out of Africa's aviation industry.

GA Telesis CRGSE expands electric power offerings to include A320 APU starter generator capability

GA Telesis Component Repair Group Southeast has upgraded its state-of-the-art Avtron Model K838AT-500 IDG/Starter Generator test stand for use on the A320 APU Starter Generator. Upgrades were made as part of a continuing initiative to expand the shop's testing capabilities for power generating components. "The flexibility of our Avtron test stand allows quick and easy set up for virtually any IDG or Generator in operation today," said Nicholas Gimbel, Engineering Manager for GAT CRGSE. "With the addition of various adapters, harnesses and software upgrades we can easily add repair/overhaul capability to test new product more efficiently and with greater precision," he added.

AFI KLM E&M modifies and provides component support for GainJet 737-400

GainJet Aviation S.A. contracted AFI KLM E&M to carry out cabin modifications on a Boeing 737-400 68 seats VIP configuration, which they acquired from the AIR FRANCE KLM group in order to expand their fleet of VIP aircraft. The VIP aircraft charter operator will also rely on the expertise and reliability of AFI KLM E&M to provide component support for the same aircraft. The aircraft is the third Boeing 737 to have entered service in GainJet's expanding private executive fleet including a VIP Boeing 757. AFI KLM E&M's subsidiary KLM UK Engineering, specializing in base maintenance (C-check) and cabin modifications on regional and single-aisle passenger aircraft, carried out the work at its Norwich facility to transform the aircraft into a comfortable business jet. The aircraft cabin has been completely refurbished and can now carry 68 passengers in reclining, leather-upholstered Business Class seats, while the baggage hold has been adapted to contain up to 5.7 tons of baggage.



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That's show business!

Analysis by **Keith Mwanalushi**

This year's edition of the Farnborough International Air show got off to a flying start in what can only be described as the event's biggest in several years. *AviTrader MRO* looks at the numbers, headliners and showstoppers.

The summer sun shone brightly this July over Farnborough, England as the who's who of the aviation industry gathered once again to do business. And do business they did – on the opening day alone orders and commitments totalled approximately U\$41.9billion – over three times that announced on the first day in 2012 according to show officials.

In attendance, Tom Covella Group President at STS Component Solutions agrees that he expected it to be the biggest and best one yet. “We really looked forward to networking with some of the finest minds in the aviation industry while also taking in a large number of the show's features and events,” he tells *AviTrader MRO*.

The theme for the 2014 edition of the Farnborough Air Show is “100 years of aviation.” Aviation is an industry with an illustrious history. From the Wright brothers' pioneering flight in 1903 to the latest advancements made by NASA.

Covella says this year's theme brings real inspiration to the industry. “STS is proud to say that we're continually inspired by the industries past successes while remaining driven to excel its future growth. As the world's leading aerospace staffing and parts-distribution company, we embrace our role in creating and defining past, current and future solutions to keep the



The opening day saw record orders.

Photo: Farnborough

industry flying,” he states enthusiastically.

The first day of the show saw a flood of orders and commitments for new commercial aircraft and engines. Clearly, the headline grabber was the launch of the Airbus A330-800neo and the A330-900neo as well as the launch of the Trent 7000 which will be the exclusive engine on the A330neo.

The launch of the new aircraft was followed by an announcement that Air Lease Corporation had signed a Memorandum of Understanding for 25 A330-900neo aircraft, becoming the first launch customer for the new wide body. This was followed by a brisk slew of announcements from major customers for a total of 121 A330neos worth U\$33.2 billion. Leading the charge was Air Asia X with a deal for 50 A330-900neos worth U\$13.8 billion.

In addition to 363 commitments for Airbus' single-aisle A320 Family, the European

manufacturer raked up U\$75.3 billion worth of business for a total of 496 aircraft, making it by far the largest Farnborough show for Airbus – both in terms of dollar value and also in the number aircraft. The deals comprise Memoranda of Understanding (MoU) for 138 aircraft worth \$36.9 billion and purchase orders for 358 aircraft worth \$38.4 billion.

For the A330neo, interestingly, Airbus has opted for the Rolls Royce's new Trent 7000 engine to be the sole power plant for the new re-engine variant. Usually, the only reason airlines want two or more engine suppliers is to get a better deal on the engine. Airbus has justified the single engine selection by saying the company has “taken the liberty to negotiate a good engine price with Rolls-Royce for all customers in advance.”

Elsewhere in the civil market, Kuwait Airways selected the Rolls Royce Trent 700 to power their fleet of five new A330 aircraft and Air Mauritius ordered six Airbus A350 XWB aircraft, powered by the Trent XWB. Away from the show, a higher thrust version of the Trent XWB ran for the first time on the test bed.



British Prime Minister, David Cameron opened the show. Photo: Farnborough



Covella: This years Farnborough was the biggest and best one yet

Rolls-Royce also announced a US\$86m order from lessor MG Aviation for Trent 1000 engines to power two Boeing 787-9s. United Airlines extended its Total Care agreement to support its fleet of RB211-535 engines powering the Boeing 757.

Continuing with engines the Engine Alliance, the 50-50 joint venture of General Electric and Pratt & Whitney announced at Farnborough that it has released a series of GP7200 engine enhancements. Largely focused on high pressure turbine (HPT) durability, the improvements will benefit all GP7200 operators, especially those who operate under tough environmental conditions.

"These changes will extend time on wing by up to 50% in hot and sandy environments," said Dean Athans, President of the Engine Alliance, "and they will do so with no impact to fuel performance. These changes will further cement our lead as the most reliable and the most fuel efficient engine for the A380."

The latest HPT design was frozen in October 2013, with successful introduction of new hardware to production on schedule in June 2014. The majority of the improvements are aimed at the HPT stage 2 nozzle module and can be installed at quick-turn repair lines or at normal shop visit, Engine Alliance stated.

Boeing too performed well at the show. According to a Boeing press release, the US manufacturer won total orders and commitments

for 201 aircraft worth US\$40.2 billion. Boeing used the occasion to announce a new 200-seat 737 MAX 8 option that will give airlines up to 11 more seats of revenue. In addition Boeing also announced new details about the interior of the 777X.

Farnborough continued to highlight the current boom in aircraft orders, this means that aviation is among the strongest players in today's world economy. This considered, it's imperative that the aviation industry advances productivity at every stage of the supply chain.

There's no question the current boom in orders marks a significant change in the industry, especially as we see operators enjoying increased profitability, and the margin for lessors weakened – as Jacob Agnew Managing Director at mba aircraft solutions observes – "A decade ago, some of today's main cost drivers had little effect on the fleet; there were fewer options in most asset categories, com-

"A decade ago, some of today's main cost drivers had little effect on the fleet; there were fewer options in most asset categories, competition between lessors had yet to balloon, order books were reasonable, and crude was still below US\$40."

Jacob Agnew, Managing Director at mba aircraft solutions

petition between lessors had yet to balloon, order books were reasonable, and crude was still below US\$40."

Agnew notes that today with the cost of debt and unsecured funding at historic lows the balance between ownership cost and maintenance cost has shifted in favour of newer assets. "This trend along with the increasing trend by a number of countries to limit older aircraft to be placed in their country, creates an imbalance in the historic lifecycle of commercial aircraft. As such, commercial aircraft have gradually but steadily for the last several years shown shorter average lifespans.

"Whether this continues going forward or is a temporary effect of increased forecast capacity, forecast aircraft demand, or oil, firms like ours have certainly worked to support our clients in the changing market," Agnew indicates.

This changing landscape has affected the Technical & Valuations group at mba in interesting ways. Agnew says trends in the past decade—across all classes of technology—have forced the industry to re-examine existing positions, in light of newer opportunities, and new requirements to operate responsibly.

Agnew continues: "Aircraft appraisers play an instrumental role in this process. Appraisers are relied on to value and predict future values of new aircraft. This role is even more complex when you consider the value profiles of current generation aircraft, which are still being produced, change as they approach return or remarketing alongside the newer generation of fleets."



Airbus have tied the knot with RR to power the A330neo.

Photo: Rolls Royce



The A330neo was a key highlight.

Photo: Airbus

Even as the market becomes more saturated, however, Mr Agnew believes it's still imperative for consulting and valuation firms to maintain their ability to equip clients with comprehensive analysis, at each level of the influence table, to create successful strategies. "This means, as an example, that any given operational or fleet strategy methodology may require greater focus on a micro level—for instance, a seasonal adjustment linked to specific slot pair times—than was typical ten years ago. That same level of sophistication in value assessment is required from today's operators as we work to support new methods of collateralisation."

On the same topic, STS Aviation Group and its component solutions division has invested considerable resources into the development of a technical database that enables the Group to forecast projected aircraft usage in order to continue to stock and maintain a global inventory based on anticipated aircraft demands.

Tom Covella explains: "This allows us to ensure that we always have the exact aircraft parts needed by our clients in an effort to help them

eliminate the high cost associated with material shortages."

He adds that the STS technical database evolves alongside the aviation industry and enables the company to modernise the parts-ordering process for operators. "So whether they're looking for aircraft components to fit an older model Boeing 737, or perhaps they're in need of parts for the newer Airbus A380, STS controls its inventory based on the anticipated demands of our clients. Knowing this, our company is able to increase industry productivity by streamlining every tier of the supply-chain demand while making it easier to procure the aircraft parts needed to get off the ground and back in the sky," says Covella.

Over at AFI KLM E&M the MRO service provider has identified the key ingredients for cooking up the optimal MRO solution for today's airlines. In an increasingly open and competitive MRO market, we asked the Franco-Dutch group how it manages to stand out in competitive terms?

"By deploying a three-pronged business development strategy," says Franck Terner, EVP at Air France KLM Engineering & Maintenance. "First off, we rely on our ability to tailor our services to the unique needs of each customer, based on our own experience as an airline MRO attuned to the expectations and constraints of aircraft fleet operators. This is what we call 'adaptiveness'.

"Secondly, we are constantly aiming for the highest possible technical and financial performance levels underpinned by a powerful, integrated industrial base and fuelled by a policy of continuously investing

in new resources and technologies. And thirdly, we are committed to a local, rapid-response approach bolstered by a constantly expanding network of maintenance bases, workshops, and logistics facilities on every continent," Terner states.

In recent years, alongside its long-standing multi-product hubs in Paris and Amsterdam, AFI KLM E&M has considerably developed its product capabilities and international presence. The Group operates a number of specialised centres of excellence, including Spairliners, offering A380 and e-Jet component support; EPCOR, specialising in APU and pneumatic components; and CRMA for engine part repairs.

On the international scene, in addition to its many logistics centres, AFI KLM E&M opened a components shop in Shanghai in late 2013 and has recently extended its maintenance capabilities in the United States following the acquisition of Barfield, a component support specialist for the Americas, whose activities will complement those of AMG, the Miami-based AFI KLM E&M subsidiary.

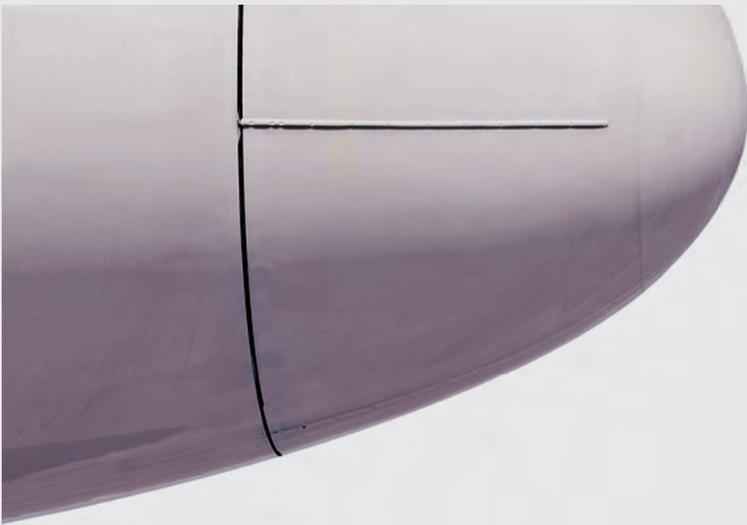
Franck Terner says that, in his view, airline know-how, expertise with new-generation products, and a local, rapid-response presence worldwide "are key ingredients for benefiting from optimally-priced, top-quality maintenance, compatible with evolving aviation industry requirements."

The sheer innovation in air transport over the last 100 years is breath taking. Aviation has, and continues to learn from its errors but as Farnborough has shown the future is also filled with optimism and advancement.



Show goers turned out in numbers.

Photo: Farnborough



Brave

MONARCH AIRCRAFT ENGINEERING (MAEL) took a brave decision in 2013. In an industry where others have seen contraction and consolidation, we chose to push the boundaries.

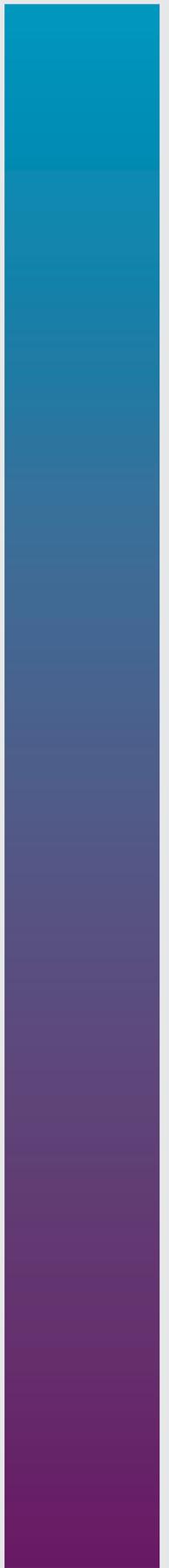
We decided to make a flagship investment in the future of our business by building one of Europe's largest, state-of-the-art maintenance hangars at Birmingham Airport.

At 110,000 sq.ft it has the capacity to hold two Boeing 787 Dreamliners side by side, plus other wide and narrow body aircraft. It will become a centre of excellence for servicing the world's leading airlines. And as we grow and become equipped with new technology our customers will grow with us.

It will also allow us to continue our investment in training and developing the next generation of highly skilled aircraft engineers; a commitment MAEL has made to the industry for the past 40 years.

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SpiceJet Airlines has selected **GE's Flight Efficiency Services (FES)** to support its fleet of 52 Boeing 737 and Bombardier Q400 aircraft. GE will provide flight data analytics and fuel management to optimize the airline's operational efficiency with the goal of substantially reducing fuel expenses for the airline.

Boeing continues to advance its suite of connectivity offerings for customers, signing a contract with **General Dynamics Ordnance and Tactical Systems** to produce a new radome, the Boeing Tri-band. The radome will support Ku and K/Ka wideband commercial and military satellite communications. The Boeing Tri-band radome is the latest of several Boeing initiatives to provide safe and reliable passenger services, such as in-flight

use for cell phones, internet access via Wi-Fi connectivity and live satellite television broadcasts. It will be available for both retrofit and production airplane installation in the fourth quarter of 2015. A radome, a combination of "radar" and "dome," is a weatherproof structure that protects an airplane's antenna to enable reliable satellite communications. The Boeing Tri-band is approximately the size of a car-top luggage carrier and has a maximum weight of 80 pounds. It is designed for use with antennas from multiple manufacturers and with data services from all current providers, offering more passenger connectivity choices for Boeing airplane operators. Based on Boeing's proven Ku-band radome design, the new design meets or exceeds current Ku-band radome performance and also provides industry-leading performance for Ka-band operators.

Finance News

Triumph Group acquires GE Aviation Hydraulic Actuation business

Triumph Group reported the completion of the previously announced acquisition of the hydraulic actuation business of GE Aviation. The acquired business will operate as Triumph Actuation Systems-Yakima and Triumph Actuation Systems- UK & IOM. The business is expected to add

approximately \$180m in annual revenue and to be immediately accretive to earnings. The purchase price was approximately \$70m. Employing approximately 475 employees, the business is a technology leader in actuation systems and does extensive business with Boeing, Airbus and other major airframers. Key product offerings include complete landing gear actuation systems, door actuation, nose-wheel steering, hydraulic fuses, manifolds, flight control actuation and locking mechanisms for the commercial, military and business jet markets.

Other News

Parker Aerospace, a business segment of **Parker Hannifin Corporation**, the global leader in motion and control technologies, and its joint ventures with AVIC FACRI and AVIC Jincheng have received business licenses from the local Nanjing and Xi'an governments to operate the joint ventures. Parker, through the joint ventures, is developing and supporting the primary fly-by-wire flight control actuation, fuel, inerting, and hydraulic systems for the C919 family of aircraft being developed by COMAC.

Pratt & Whitney launched its Geared Turbofan PW1000G engine maintenance, repair and overhaul (MRO) network at the Farnborough Airshow, providing customer solutions that result in engines with longer time on-wing and lower fuel burn advantages. Pratt & Whitney will build on its existing comprehensive MRO network to locate facilities and customer service representatives around the world to provide rapid service for Geared Turbofan engine operators. To date, five engine overhaul centers have been initially selected to maintain the PW1000G fleet, strategically located in Asia, Europe and North America. All customer service representatives and facilities will be tooled, trained and ready to ensure fast, quality service. Additional providers may be added over time as appropriate.

Flatirons Solutions released that **LATAM Airlines Group**, the leading airline in Latin America, has selected its manufacturer-independent, content life-cycle management (CLM) solution to manage LATAM's maintenance and engineering documentation for the group's Boeing and Airbus fleets of more than 300 aircraft. The choice of Flatirons' suite of products enables LATAM to meet technical documentation requirements for its existing and new-generation aircraft, including Boeing's 787 Dreamliner and the Airbus A350, in a single system.

SR Technics and **Swiss AviationSoftware** have jointly implemented integrated system interfaces between AMOS and SR Technics' SAP. The new functionalities cover customer requirements for an "all in one" system solution and will improve efficiency, transparency and ultimately on-time-delivery. Four interfaces mark the start of further interface functionalities planned for upcoming AMOS releases between fall 2014 and spring 2015. All functionalities will provide enhanced levels of service to customers in areas extending from Component Services to Aircraft Services.



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Aircraft Parts Consignment
Nose to Tail: 737, 747, 757, 767,
A300, A310, A320, DC10, A310*

Sky's the limit at Delta TechOps

Hartsfield–Jackson International Airport (ATL) in Atlanta, Georgia is like a city in itself. On the east side of the airport is located a 1.5 mile long maintenance facility belonging to Delta TechOps - the MRO division of Delta Air Lines.

Delta TechOps (DTO) is the largest airline MRO in North America and the third largest worldwide. The division employs over 9,600 technical operations experts system-wide providing full-service aviation maintenance to Delta and services its fleet of more than 750 aircraft. In addition, DTO provides complete maintenance for more than 150 other operators, specialising in complex high-skill work on engines, components and airframe. Additional Delta services include line maintenance, compliance and quality assurance, engineering, training, inventory, and exchange services.

DTO indicates that it offers customers the same expertise that enables parent carrier Delta to tout industry-leading aircraft reliability at low operating costs. As a full-service MRO, the company says it offers comprehensive technical training, engineering support, inventory management, component support, engine overhauls, and engine condition monitoring to keep a fleet flying.

DTO employs Lean and Six Sigma processes at aircraft line maintenance stations around the world. Lean Six Sigma is a set of powerful



We understand your airline's needs because we are one.

Photo: Delta TechOps

tools and techniques that help any organisation to improve its efficiency and productivity. Although they originated in manufacturing environments, their principles can be applied to businesses operating in any sector.

In May this year the Atlanta-based MRO organisation stepped up its presence and expertise in the European, Middle Eastern and African regions with the establishment of an in-house line maintenance station in Amsterdam, which has become the largest in EMEA, and follows the opening of line maintenance in Sao Paulo, Brazil. Previously, all aircraft maintenance, repair and overhaul activity in EMEA was carried out by joint venture partner KLM. Delta also has a line maintenance team based in London-Heathrow and Paris-Charles De Gaulle.

“The opening of the Amsterdam line maintenance station is significant because it gives us a seamless base for maintenance functions in Amsterdam,” said John O’Donnell, regional director-International line maintenance. “From here, we will also be able to support the Delta operation across Europe, improving the customer experience by minimising any maintenance-related delays.”

In order to avoid lengthy and expensive Aircraft on Ground (AOG) situations, the company says it can dispatch a quick-response Disabled Aircraft Recovery Team (D.A.R.T.) to get the aircraft back in the air as a matter of urgency.

Principal Airframes Serviced: Airbus: A318 A319, A320, A321, and A330;

Boeing: B737 (Classic, NG), B747, B757, B767, B777, MD-11, MD-80, MD-90

Principal engines serviced: Turboprop: CF34-3A/B, CF34-8C, CF6-80A/A2, CF6-80C2, CFM56-3, CFM56-5, CFM56-7, JT8D-219, PW2000, and PW4000-94;

APU: GTCP 131-9B, GTCP 331-200



DTO's core capabilities include engine and component overhaul

In the hot seat.....

Keith Mwanalushi speaks to Vesa Paukkeri President and COO, CTS Engines.

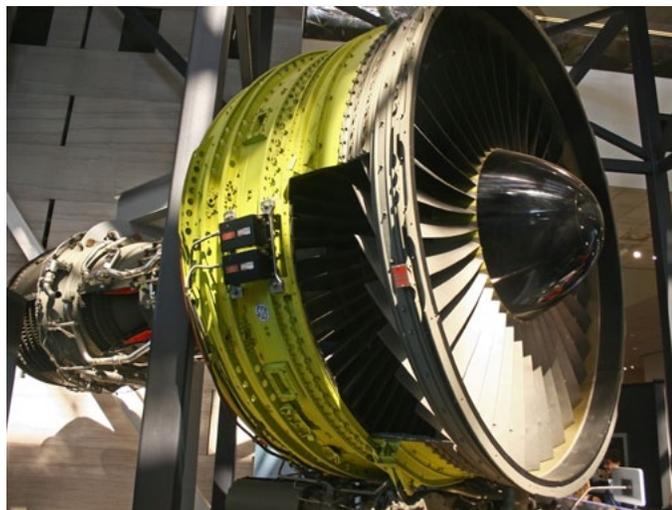
AviTrader MRO: What attracted you to this business?

Paukkeri: The MRO industry includes many arms which actually are very different from each other. They all have their own interesting features, but with engines, you really get involved with one of the main cost drivers for an airline. When it comes to repairing the engines, I like the fact the outgoing product (repaired engine) is so clearly a sum of inputs, mainly work scope and part repairs which you make.

meetings with customers and vendors, which include some travelling as well. We are a relatively small company and do not spend too much time on meetings so I sometimes have the opportunity to dive into engineering stuff, which is fun.

AviTrader MRO: What is the most challenging part of your job?

Paukkeri: There are two main areas: Firstly, building a team(s) where people are encouraged and enabled to show their best performance each day. Secondly, keeping the main KPIs (quality, TAT and cost) in good shape in the middle of rapid growth.



Mature engines such as the CF6 by GE was first installed on the DC-10 and also powered the 747,767 MD11 and A300, A310 and A330.
Photo: Sanjay Acharya

AviTrader MRO: What does a typical day's work entail in your job?

Paukkeri: I typically start a day reading emails and making a shop tour. Our daily production meeting is the heart of operations and I like to attend it as often as I can. Many times there are

most times very different from those required for newer engine types. When customers are getting what they expect, there is lot of business out there.

AviTrader MRO: High engine maintenance costs are a concern to aircraft operators, how are you



Vesa Paukkeri President & COO, CTS Engines

tackling this issue at CTS?

Paukkeri: We have a good location for an engine MRO and low basic operating costs which helps to keep cost down. We are very lucky with a great availability of serviceable material which surely helps us to keep cost down.

AviTrader MRO: How are you dealing with the growing involvement of OEMs in the engine aftermarket?

Paukkeri: We see OEMs need someone like us to support the various requirements of airlines. We really want to develop our skills and capabilities to be a good match to OEMs. I believe it is benefiting all parties involved.

AviTrader MRO: What's next in the pipeline at CTS?

Paukkeri: We truly focus on making continuous improvements in various areas to serve our customers in the best possible ways. Some could say it is business as usual, but for us it is something we take very seriously each day.

Service is our priority. Solutions are our speciality.

Asset Management
Repair Management
Engine Sale and Lease

Aircraft Nacelle for V2500 Engine
LRU Pooling for A320 Airframe

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Maintenance is one of TAG Aviation's core services and has been the cornerstone of its operational excellence for over 45 years. TAG Aviation is approved by all main aircraft manufacturers and is certified to work on over sixty types of aircraft. Among its maintenance centres based in Geneva, Sion, Farnborough, Madrid, Paris, and Lomé in Togo, TAG Aviation fully provides core maintenance businesses - airframes, avionics, troubleshooting and ramp services - along with ten specialist workshops. TAG Aviation offers the perfect one-stop-shop for aircraft maintenance.



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Seamless Operations Enhance Maintenance Efficiencies

TAG Aviation's maintenance facility in Geneva leverages Quantum Control MRO & Logistics Software to unify maintenance processes in every center and integrate new workshops to provide one efficient solution to its customer.

The Challenge

As an authorised service centre for the world's leading business jet brands, TAG Aviation sought to further increase the operational efficiencies of its maintenance practices for all of its centres and new specialist workshops that support Part 21 and completions. Specific to this requirement was the need to integrate multi-site work orders into one software system.

The Solution

After a detailed vetting process, TAG Aviation SA selected Quantum Control MRO & Logistics Software, by Component Control. Quantum enables TAG Aviation to establish individual centre operations within the same software solution to be able to extract activities and data by site, while unifying TAG Aviation maintenance processes across its maintenance centres and specialist workshops. Workshop information seamlessly connects to maintenance work packages to give a unified view of customer work requirements, status and cost. The integration within Quantum streamlines and coordinates maintenance and specialist practices so that teams are working efficiently while maintaining the highest level of safety and reliability for its customers' aircraft.

Quantum Control facilitates work packages, inventory requirements,

exchanges, rotables, and more for corresponding warranty claims, flight line, and heavy maintenance contracts while simultaneously invoicing and tracking critical parts' history and regulatory data requirements. Quantum also natively supports unlimited currencies and multiple tax requirements for the global business environment.

An additional benefit of Quantum is its data analytics capability powered by the MaxQ Oracle™ database and integrated Crystal Reports. TAG Aviation is able to view real-time maintenance activity statistics to better understand areas for improvement.

TAG Aviation also benefits from Quantum's continuous improvement programme driven by global customer feedback to Component Control. As new aviation guidelines, regulations or best practices develop, Quantum users collectively advise on the best improvements for enhancing overall business efficiencies, which are then provided to all Quantum users.



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Farnborough Air Show 2014: IBA's Review

by Mike Yeomans - Senior Aviation Analyst, International Bureau of Aviation

IBA has observed an impressive tally of orders once again at the Farnborough Air Show, spanning many manufacturers and aircraft types. There has been significant involvement from both airline customers and leasing companies and there have been one or two surprises.

While the likelihood of an A330neo launch grew in the days and weeks prior to the start of the show, the volume of orders placed for the model was both impressive and perhaps even a little surprising. It had been well publicised that AirAsia X had been pushing Airbus hard for a re-engined version of the A330 for some time, however the firm order for 50 units is a very large order, particularly when supplemented with an MoU for a further 50 units. The leasing community has shown early confidence in the model too, with three lessors also placing significant orders for the model, bringing the total firm orders to 115 units.

While the A330neo stole the show in terms of wide-body orders, there were also numerous orders for models from Boeing's product line. The most significant of these perhaps was Qatar's order for 50 777-9X aircraft, which was finalised at the show. While this appears to be a firming of the order placed in at the Dubai show last year, the Gulf carrier appears to have taken options on a further 50 units! The current generation 777 also took some orders at Farnborough. The 777F took four orders with options for four more, again from Qatar. The 777-300ER passenger variant also received commitments from Air Lease Corporation and Intrepid Aviation totalling 12 units, highlighting that there is still some way to go to bridge the production gap to the X.

Boeing's 787 program also took some solid orders, all of which were for the 787-9 variant. A total of 18 units were ordered by Avolon (6), CIT Aerospace (10) and MG Aviation (2).

Strong demand for new narrowbodies continued at

Farnborough, with over 500 commitments recorded across all manufacturers. Both Boeing and Airbus took orders for their current and re-engined products. Airbus A320ceo family products accounted for 46 commitments, however the majority went to A320neo family models which totalled 317.

Boeing's NG family received few orders during the Air Show, with just one order for four 737-800s from Okay Airways and two 737-700Cs from Air Algerie. However the new MAX product was well represented, with orders totalling 111. The vast majority were of the most popular MAX 8 model, with no MAX 7 orders and one commitment from Irish lessor, Avolon, for five 737 MAX 9s.

Bombardier's CSeries program gained a welcome filip at the Farnborough Air Show, despite its omission from the displays due to technical problems experienced during the flight test program which have left the fleet grounded. Both the smaller CS100 and larger CS300 models have received orders at Farnborough, although the CS100 took the lion's share throughout the event. Loong Air and Petra Airlines signed letters of intent for 20 and two units respectively while Falko Regional Aircraft committed to up to 24 examples of the type. Petra supplemented its two CS100 order with options on two of the larger CS300 variant. CS300 commitments totalled 17 orders with nine options.

In the turboprop segment, both ATR and Bombardier took some healthy orders during the show. However, ATR's -600 range continues to eclipse Bombardier's offerings in terms of demand. The larger ATR 72-600 model received 13 commitments from Air Lease Corporation and Myanma Airways for seven and six aircraft respectively. It was the ATR 42-600 that dominated the Farnborough turboprop order book with a single order from prominent turboprop lessor, Nordic Aviation Capital. The Scandinavian lessor placed a firm order for 25 examples and took options on a further 50. Bombardier's ATR

72 competitor, the Q400, received orders from Abu Dhabi Aviation, Falcon Aviation Services, Horizon Air and Nok Air totalling 10 units.

The regional jet market is becoming an increasingly competitive market segment with several new entrants planned over the coming years. It was therefore exciting to see that all of the future players in this segment took some orders during the Farnborough Air Show. Established regional jet manufacturer Embraer took the majority of the orders with 83 orders and 73 options for its new E2 range, alongside an order for the existing E190 model from Azerbaijan Airlines for two examples.

Mitsubishi's MRJ90 aircraft program received a welcome boost to its orderbook too, with Air Mandalay committing to an order for six aircraft with four options and Eastern Air Lines put pen to paper for 20 units with options on a further 20. COMAC's ARJ-21 aircraft also took orders for six units from three customers. Yanshang Corp ordered one, although this will be operated in a corporate role, while Nashan Group took two and Republic of Congo Transport Ministry took three. Sukhoi's SSJ-100 aircraft received one order for seven units from Kazakhstan's Bek Air.

To summarise, the Farnborough Air Show has, once again, provided a fantastic spectacle and has hosted a wealth of orders from a variety of customers across the globe, with over 900 order commitments and in excess of 250 options to supplement these. IBA has provided a summary of all the orders it has recorded during the week below.



The IBA is an independent aviation consulting firm based in Leatherhead, UK, with representation worldwide.

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Aircraft Manufacturer	Aircraft Model	Customer	Order Status	Orders	Options
Airbus	A320ceo	BOC Aviation	Firm	36	0
Airbus	A320ceo	SMBC Aviation Capital	Firm	5	0
Airbus	A320neo	BOC Aviation	Firm	7	0
Airbus	A320neo	Hong Kong Aviation Capital	Firm	40	0
Airbus	A320neo	IAG (British Airways)	Firm	20	0
Airbus	A320neo	SMBC Aviation Capital	Firm	110	0
Airbus	A320neo family	AerCap	Firm	50	0
Airbus	A321ceo	CIT Aerospace	Firm	5	0
Airbus	A321neo	Air Lease Corporation	Firm	60	0
Airbus	A321neo	Hong Kong Aviation Capital	Firm	30	0

Aircraft Manufacturer	Aircraft Model	Customer	Order Status	Orders	Options
Airbus	A330-900neo	Air Lease Corporation	MoU	25	0
Airbus	A330-900neo	AirAsia X	Firm	50	50 (MoU)
Airbus	A330-900neo	Avolon	Firm	15	0
Airbus	A330-900neo	CIT Aerospace	Firm	15	0
Airbus	A330ceo	Transaero	Lol	8	0
Airbus	A330neo	Transaero	Lol	12	0
Airbus	A330neo	Unidentified	Unknown	4	0
Airbus	A350-900	Air Mauritius	MoU	4	0
ATR	42-600	Nordic Aviation Capital	Firm	25	50
ATR	72-600	Air Lease Corporation	Firm	7	0
ATR	72-600	Myanma Airways	Firm	6	6
Boeing	737 MAX 8	Air Lease Corporation	Firm	20	0
Boeing	737 MAX 8	Hainan Airlines	Lol	50	0
Boeing	737 MAX 8	Monarch Airlines	Firm	30	0
Boeing	737 MAX 8	Okay Airlines	Firm	6	0
Boeing	737 MAX 9	Avolon	Firm	5	0
Boeing	737-700C	Air Algeria	Firm	2	0
Boeing	737-800	Okay Airlines	Firm	4	0
Boeing	777-300ER	Air Lease Corporation	Firm	6	0
Boeing	777-300ER	Intrepid Aviation	Firm	6	4
Boeing	777-9X	Qatar Airways	Firm	50	50
Boeing	777F	Qatar Airways	Firm	4	4
Boeing	787-9	Avolon	Firm	6	0
Boeing	787-9	CIT Aerospace	Firm	10	0
Boeing	787-9	MG Aviation	Firm	2	0
Bombardier	CS100	Falko Regional Aircraft	Lol	Up to 24	
Bombardier	CS100	Loong Air	Lol	20	0
Bombardier	CS100	Petra Airlines	Lol	2	0
Bombardier	CS300	airBaltic	Firm	3	0
Bombardier	CS300	Falcon Aviation Services	Firm	2	1
Bombardier	CS300	Petra Airlines	Lol	0	2
Bombardier	CS300	Unidentified	Lol	7	6
Bombardier	CSeries	Unidentified	Lol	5	0
Bombardier	Q400	Abu Dhabi Aviation	Firm	2	0
Bombardier	Q400	Falcon Aviation Services	Lol	5	0
Bombardier	Q400	Horizon Air	Firm	1	0
Bombardier	Q400	Nok Air	Firm	2	0
Embraer	E175-E2	Fuji Dream Airlines	Firm	3	3
Embraer	E175-E2	Trans States	Firm	50	50
Embraer	E190	Azerbaijan Airlines	Firm	2	0
Embraer	E195-E2	Azul Brazilian Airlines	Firm	30	20
Mitsubishi	MRJ90	Air Mandalay	Firm	6	4
Mitsubishi	MRJ90	Eastern Air Lines	MoU	20	20
Sukhoi	SSJ-100	Bek Air	Firm	7	0
COMAC	ARJ-21	Yanshang Corp	Firm	1	0
COMAC	ARJ-21	Nanshan Group	Firm	2	0
COMAC	ARJ-21	Republic of Congo	Firm	3	0



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Simplified technical English

Removing ambiguous procedures from aviation maintenance.

Analysis by Rus Sutaria – Avia Intelligence Limited, London

Many commentators have suggested that the key to a safe operational and aircraft maintenance environment also lies within the development and implementation of standard operating procedures that are both unambiguous as well as efficient. Thomas Reid (a Scottish philosopher of the 1700s) commented that “there is no greater impediment to the advancement of knowledge than the ambiguity of words”. Where complex engineering and technological environments like aviation maintenance are concerned, the problem is even more acute. Add to that, operators and MROs in countries where English is not the first language and the reader will begin to understand the scale of the problem.

This month, Rus Sutaria considers the challenges and associated safety risks that are presented to those of us whom are required to implement badly written procedures, and attempts to provide some basic guidelines for the development of clear unambiguous instructions that are anything but ‘baby English’.

Historically, and by tradition, the internationally accepted language of aviation has always been English. The problem lies with correct interpretation of the various writing styles with regard to English in the United States, Europe, and off-course the United Kingdom. As with all of us (this author included), we all know what we meant to say, however global variations in the English language can easily be misunderstood by others, especially where the first language of the user is not the same.

With the discovery of minerals and oils in former third-world nations, there appears to be a growing number of operators and MROs flying ‘state-of-the-art’ aircraft where engineers, ground handlers and even pilots are attempting to operate these complex aircraft whilst attempting to interpret procedures developed in English where their first language might be anything but. The risk of misinterpreting data that was really meant for fluent English speakers might lead to an operational or maintenance incident or accident. These days, airlines tend to employ a wide variety of pilots, engineers and ground personnel from a wide variety of nations and cultures, not least differing levels of fluency.

With the advent of Electronic Flight bags for pilots, and portable devices for use by engineering and ground operations, hasn’t the time come to stop treating English as the primary language of aviation, and take advantage of the new on board and ground-based technologies to facilitate an almost infinite variety of SOPs and other documentation in other local languages and dialects.

Before anybody goes screaming into the night whilst thinking about the complexities of such a project, we would do well to remind ourselves that this has already happened when we consider that the EASA Form 1 component release has been issued for some

time in other European languages. If a component release can be issued in a language other than English, then why on earth haven’t we recognized the opportunity of working with other documentation in much the same way?

Simplified Technical English (STE) in the form of ASD-STE100 in conjunction with DITA, CAP 676 & S1000D has been designed to provide technical authors, and users with a standardized means through which clear instructions can be issued to our aviation operatives without compromising safety and efficiency. The basis of ASD-STE100 is the application of a standardized dictionary of commonly utilized aviation terms together with a wide range of rules that cover technical names and verbs as well as other key technical authoring deficiencies involving the use of paragraphs and punctuation. After all, aviation has the responsibility to ensure that the role of any technical communication is to provide information clearly, concisely and without ambiguity.

The great secret in the avoidance of ambiguity is that regardless of whether the user is fluent in English or not, is that differing languages and cultures do not just limit themselves to national boundaries. More so, any safety professional will tell you that organizational and even professional cultures must also be accounted for.

To illustrate the point, a vehicle maintenance manual could state “The component is under the hood”. In the US this might be interpreted as the component is located in the engine compartment, whereas in the UK this could mean that the component is located under a retractable roof in the passenger compartment. The engineer could as a result of misinterpretation be looking in entirely the wrong place. A better way of say this might be ‘this component is under the engine cover’ or ‘first get access to the engine’.

ASD-STE100 forces technical authors not only to structure data better, but also to make instructions as specific as possible. OK there is a lot of resistance to the application of STE on these grounds alone, however, the tide is turning in this regard, with numerous aviation businesses insisting on working with organizations where technical data is provided utilizing the ASD-STE100 standard.

The benefits of engineering documentation that is based in STE are incalculable where the techniques and standards have been applied correctly to the data. The first and foremost is the ease of both internal and external communication, a reduced need for training and support, but above all the ease of translation of the data into other local languages and dialects.

Translation of any document from one language to another is always a risky business. Technical authors would do well to remember that many languages pos-

sess differing sentence constructions as well as variations in the use of punctuation. Therefore technical authors might do well to ensure simple constructs, with short sentences and minimal use of punctuation. One strong piece of advice would be to have any translation peer reviewed in order to ensure that all parties have the same understanding of the data. This simple ‘Sanity-check’ is invaluable, and should be included regardless of whether STE is being applied or not.



Rus Sutaria, Director – Content and Knowledge Services
Photo: Avia Intelligence Ltd

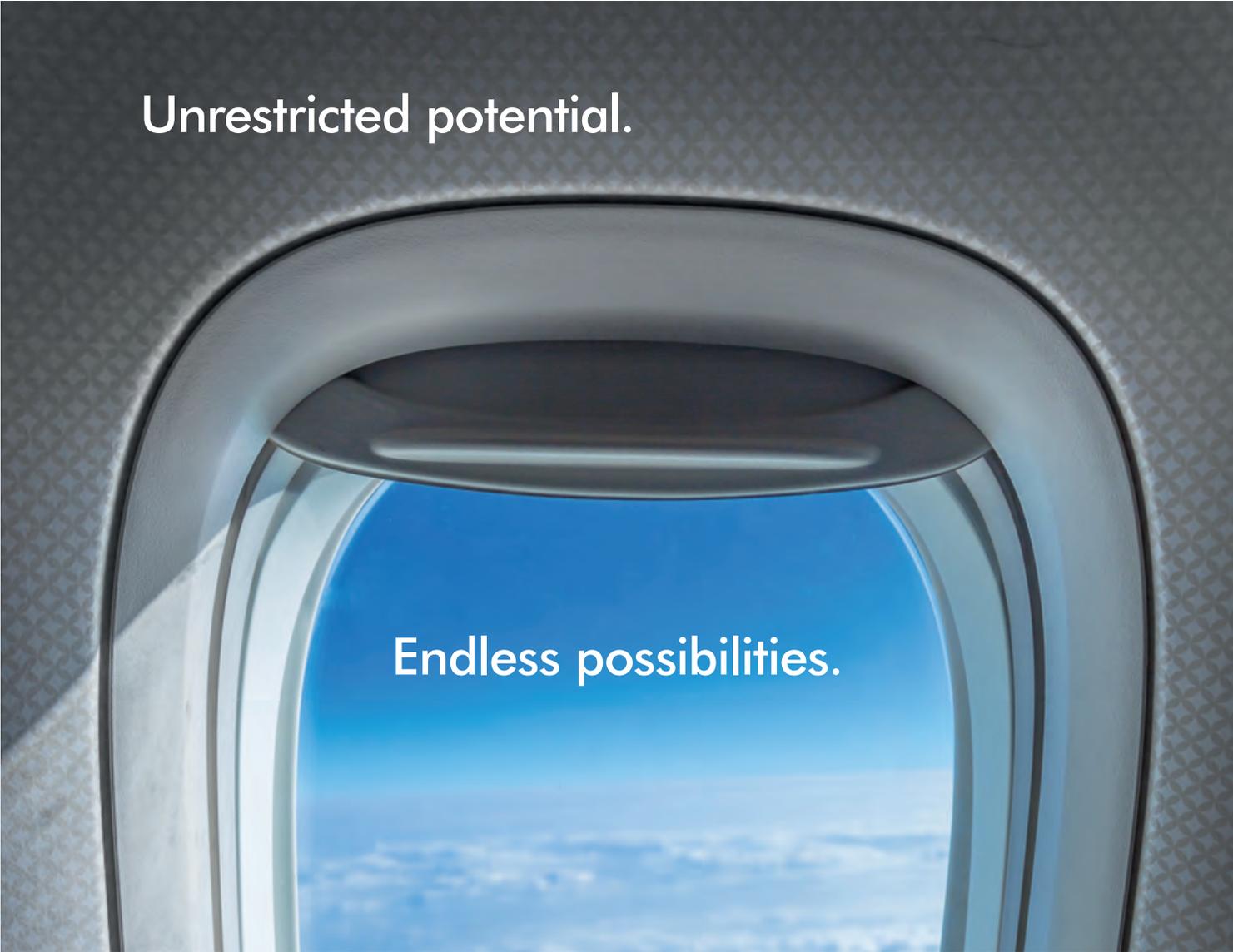
With ease of communication comes better understanding in terms of clear instructions and procedures. Aviation operatives would not have to check or second guess as to what the technical author really meant. All of the above facilitates the ability to do the job quicker, whilst imparting greater confidence in the operative’s own mind that he or she has done the task correctly.

OK, I know what you are thinking. The cost in terms of time and money to do this will be significant. To this effect you would be correct. However, the initial investment will almost immediately provide opportunities for pay-back that actually lead to improved safety and airworthiness, not least cost savings. With users working more quickly, productivity increases and labour costs reduce. Believe it or not, translations and the use of Subject Matter Experts when developing an STE document also takes less time and cost to accomplish. Unambiguous data correctly applied also means fewer mistakes.

From the perspective of risk, fewer mistakes and misunderstandings means lowering the risk of things going wrong. From the aviation view-point, simplified technical English could mean the difference between misinterpreting procedures for the operation or maintenance of a complex aircraft with fatal results, and an enhanced safety environment.

All-in-all the application of STE to the development of new aviation procedures, and the redevelopment of existing ones provide operators and maintainers with the opportunity of enhancing safety and airworthiness, whilst reducing cost and the risk of things going wrong. Although aviation has already gone a long way to improving safety in this regard, there is still a long way to go, and it seems apparent that that the old traditions are still getting in the way. As an industry that by definition always constantly moves forward, we still appear to be ‘treading water’ where unambiguous technical data is concerned.

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Giorgio Moreni, new CFO for ATR *Photo: ATR*

The ATR Assembly of Members has appointed **Giorgio Moreni** as Chief Financial Officer (CFO) of ATR. He succeeds Eric Baravian, whose four-year mandate according to ATR's statutes has expired in June 2014.

SR Technics has appointed **Christina Johansson** as its new Chief Financial Officer, effective August 1st, 2014. Reporting directly to André

Wall, CEO of SR Technics, Christina Johansson will join SR Technics' Leadership Team. She takes over from Angelo Quabba, who decided to leave the company after seven years.

CTS Engines, a leading independent jet engine MRO and portfolio company of Palm Beach Capital Partners, hired **Peter J. Iannone** as Chief Financial Officer, a key addition to further develop the growing company. Mr. Iannone has held a numerous executive management positions in several industries and comes with a wealth of finance experience, including mergers and acquisitions, entrepreneurship, and publicly-traded companies.

Atlanta-based Precision Aviation Group has named **Adrienne Robinson** Vice President, Business Development. Prior to her new appointment, Robinson served PAG in dual roles: She joined the company as Vice President, Business Development in 2012 and three months later was asked to take on the additional role of President, Precision Avia-

tion Services (PAS) in Peachtree City, GA.

Ashley Cooper, Founder and CEO of TES Aviation Group, stepped down from his executive position effective July 4th 2014. The Board of Directors announced that **Mathew Burris**, who is currently COO, will assume the position of CEO. Ashley Cooper will remain on the Board of TES Aviation Group as a Non-Executive Director.



Mathew Burris, new CEO for TES *Photo: TES Aviation Group*

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